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NEW-YORK TRIBUNE.

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NEW-YORK TRIBUNE.

SCIENTIFIC CONVENTION
AT NEW-HAVEN.

American Association for the Advancement of Science.

[Reported for The Tribune.]

THIRD DAY....NEW-HAVEN, Wednesday, Aug. 11.

The Association met in general session this morning at 9 o'clock, in the College Chapel—President BACHE in the Chair. The Minutes of the previous day, and of the Standing Committee were read and adopted. The Committee recommended a further subdivision of the Association into Sections, on account of the great number of papers to be presented.

The Section of Physics was therefore divided so as to form a third. The titles of the three are: 1. Natural History and Geoloegy; 2. Physics and Mathematics; 3. Chemistry and Mineralogy. The attendance at each is very fair; at the general sessions, very large.

In accordance with the recommendation of the Standing Committee, Prof. AGASSIZ was this morning elected President of the Association for the ensuing year. The Professor responded to the compliment in a few brief and appropriate remarks.

A number of new members were added to the Association.

An invitation was received from Mr. Hillhouse to visit his residence on Friday evening; and from Mr. Brewster, proprietor of the celebrated new "Brewster Hall," to visit his collection of Paintings. Prof. Silliman, Sen. took occasion to pay a high compliment to the enterprise and public spirit of Mr. Brewster, by whom this elegant Hall has been erected in aid of sound learning and scientific research, combined with rational recreation.

On motion of Prof. ADAMS, the thanks of the Association were returned for these invitations.

Dr. LECONTE, of Athens, Ga. was chosen an additional Secretary, in place of Dr. GOULD, who declined serving.

The President then called for the Reports of the several Committees appointed at former Conventions, upon various subjects of public importance.

The Treasurer of the Association, Dr. A. L. ELWYN, presented a verbal report of the Receipts and Expenditures of the past year. At his request, Profs. B. SILLIMAN, Jr. and E. N. HORSFORD, were appointed Auditors to examine the accounts.

The Special Committees appointed or continued at the Cambridge meeting consist of the following gentlemen, who have charge of the subjects respectively attached to their names. From a number of these, Reports will be presented at this session, in addition to that of Lieut. DAVIS, on the Prime Meridian, which I give entire. The following is the complete list of the

SPECIAL COMMITTEES.

Committee on the Communication of Lieut. Maury upon Winds and Currents.

Pres. Sparks, of Cambridge, Mass.	Wm. C. Redfield, Esq., of New-York.
Prof. Lewis R. Gibbes, of Charleston, S. C.	J. Ingersoll Bowditch, Esq., of Boston, Mass.
Prof. Benjamin Peirce, of Cambridge, Mass.	Prof Arnold Guyot, of Cambridge, Mass.

Committee on the Prime Meridian.

Prof A. D. Bache, Sup't U. S. Coast Survey.	Prof. Courtenay, University of Virginia.
Lieut. M. F. Maury, Sup't National Observatory.	Prof. S Alexander of Princeton, New-Jersey.
Prof Barnard, of Alabama.	Prof. J. Frazer, University of Penn.
Prof. Lewis R. Gibbes, of South Carolina.	Prof. Anderson, of N. Y.
Prof. Mitchell, of Cincinnati.	Prof. Curley, Georgetown College.
Prof. Stanley, Yale College.	Prof. Fowler, of Tennessee.
Hon. Wm Mitchell, of Nantucket, Mass.	Prof. Phelps, of N. Carolina.
Prof. Lovering, University at Cambridge.	Prof. Bartlett, West Point.
Prof. Smyth, Bowdoin College.	Prof. Snell, Amherst, Mass.
Prof. Winlock, of Ky.	Prof Caswell, Providence.
Prof. Coxsley, St. James, Md	Lieut. C. H. Davis, Supa'nt Nautical Almanac.

Committee on the Subject of a Uniform Standard of Weights and Measures

Prof. Joe Henry, of Washington, D. C.	Lieut. M. F. Maury, of Washington, D. C.
Prof. Arnold Guyot, of Cambridge, Mass.	Prof. A. D. Bache, of Washington, D. C.
Prof. Stanley, N. Haven, Ct.	

Committee on the Publication of an Astronomical Journal appointed in the Physical Section.

Dr. B. A. Gould, of Cambridge, Mass	Prof A. D Bache, of Washington, D. C.
Prof J. S. Hubbard, of Washington, D. C.	Lieut M. F. Maury, of Washington, D. C.
Prof. John. H. C. Coffin, of Washington, D. C	Lieut. C. H. Davis, of Cambridge, Mass.
Sears C. Walker, Esq., of Washington, D. C.	Prof. Benjamin Peirce, of Cambridge, Mass.
Prof Joseph Henry, of Washington, D. C.	

Committee to Memorialize the State Governments on Geological Surveys.

Dr. R. W. Gibbes, of Columbia, S. C.	Dr. S. G. Morton, of Philadelphia.
Pres. E. Hitchcock, of Amherst College.	Dr. C. T. Jackson, of Boston.
Prof. H. D. Rogers, of Boston.	Gov. J. W. Mathews, of Jackson, Mississippi.
Prof. L. Agassiz, of Cambridge, Mass.	Dr. G. Troost, of Nashville, Tenn.
Prof. B. Silliman, Sen., of New-Haven, Conn.	Prof. Wm. B. Rogers, of Charlottsville.
	S. Hamilton Cooper, Esq., of Darien Geo.
T. Romeyn Beck, of Albany, New-York.	Prof Lewis C. Beck of New Brunswick, N. J.
Joseph Delafield, Esq. of New York.	Prof Joseph Henry, of Washington D.C.

Committee to Memorialize the Legislature of Pennsylvania in reference to the Publication of the Final Geological Report of that State.

Pres. E. Hitchcock, of Amherst, Mass.	Prof A. D. Bache, of Washington.
Wm. C. Redfield, Esq. of New York.	Prof. James Hall of Albany.
Solomon W. Roberts, Esq. of Philadelphia.	Prof. Henry D. Rogers, of Boston.

Committee in relation the United States Coast Survey.

Hon. Edward Everett, of Cambridge, Mass.	Prof Caswell, of Providence, R.I.
Prof. Benjamin Peirce, of Cambridge.	

Committee appointed last year for Memorializing Congress in relation to Scientific Explorations, by a vote of the Association continued for this year.

Dr. Robert Hare, of Philadelphia.	Dr. Robert W. Gibbes, of Columbia, S. C.
Prof. Benjamin Silliman, Sr of New-Haven.	Prof. Henry D. Rogers, of Boston.
Wm. C. Redfield, Esq. of N. York.	Pres. Edward Hitchcock, of Amherst, Mass.
Prof. Benjamin Peirce, of Cambridge, Mass.	Prof. Louis Agassiz, of Cambridge, Mass.
Prof. Stephen Alexander, of Princeton	Dr. Samuel G. Morton, of Philadelphia.

Committee on Physical Constants.

Prof. Frazer, Philadelphia.	Prof Olmsted, New-Haven.
Prof Lovering, Cambridge.	Mr E. C. Herrick, New-Haven.
Prof. Peirce, Cambridge.	Prof. Mitchell, Cincinnati.
Prof L. R. Gibbes, Charleston.	

The Report of the Committee on Lieut. MAURY's Theory of Winds and Currents was formally presented at the meeting of the Association in Charleston in March last. Consequently there was no Report here. Prof. BACHE, however, stated that the objects sought by Lieut. MAURY had already been attained, in a great measure. To forward the investigations in which that gentleman is so actively engaged, a National vessel—the "Taney"—had been transferred from the Treasury Department and placed at his disposal, and had since sailed on a cruise of observation, under command of Lieut. Walsh, and returned. The immediate necessity of continuing this Committee was therefore obviated. The question of its continuance, however, was referred to the Standing Committee without further action.

I annex a copy of the able Report of the Committee. Though not properly a subject to be included in a sketch of the doings of this Session, it possesses a great degree of interest, and will not be space wasted. The Report was presented at Charleston on Wednesday, March 13; and is as follows:

REPORT

Of the Committee on the Communication of Lieut. MAURY, upon Winds and Currents.

The Committee of the American Association for the advancement of Science, to which was referred the communication of Lieut. M. F. Maury, U. S. Navy, on the Winds and Currents of the Ocean, has had the subject under consideration, and has now the honor to submit the following report:

Through the great zeal and industry of the author of this communication, a vast amount of information has been brought to light, which had hitherto been concealed in the unknown records of sea voyages. These records taken separately consist of individual experience and observations, such as are necessarily of limited extent and value, and cannot by their single authority lead to any general conclusions. But combined and compared together, as has been done by Lieut MAURY, they prove to be of great importance, and promise to elicit information of the highest interest to the practical navigator, and to the man of science.

Upon a correct knowledge of the force and set of currents in the Ocean, often depends not only the safety of vessels and their cargoes, but the lives of all on board; and owing to the want of this knowledge, many lives and much valuable property are annually cast away and lost at sea.

We are yet ignorant, to a certain extent, of the general laws which regulate the great currents of the Ocean, and to a still greater degree are we uninformed of the nature and direction of local currents, which occurring near the land, are either very serviceable or very dangerous to the navigator, according to the state of his information.

While also we are acquainted with the limits and direction of the most conspicuous general winds, as the trade-winds and monsoons, we have still much to learn concerning the places of meeting of these winds with each other, or with different winds and the directions resulting from the combined action—concerning the winds that prevail chiefly, or at different seasons of the year, in what are termed the variable regions, and concerning the local winds, which owe their existence and character to the influence of neighboring winds.

We have again to be still further instructed as to the nature of meteoric storms, by which great destruction is caused upon the sea. The more we accumulate facts concerning them, the better shall we be able to discover the seat and circumstances of their origin, their variable dimensions, the course they travel, and the indications by which their approach is to be known.

Thermometrical navigation requires still to be very much improved before we can reap the full benefit which the use of this simple instrument, the thermometer, is destined to afford to the seaman.

It is now recognized as one of the easiest methods by which the mariner can ascertain his approach, either distant or near, to our coast, and discover his proximity to icebergs.

To these several branches of nautical knowledge, the researches of Lieut. Maury have already made valuable additions, as we learn from the communication submitted to the Committee.

And, if continued, these additions must become every day more important, and lead nearer and nearer to a correct understanding of the laws by which these phenomena, whether general or local, are governed, and of the best manner in which the navigator can profit by the facts that fall under his observation.

Every effort to increase the safety of navigation and facilitate the business of the sea must command our warmest sympathies. The success that has hitherto attended the efforts of Prof Maury induces the Committee to urge upon the Association, and upon the Government, the great importance of continuing these investigations.

The Association can only lend the influence of its opinion and the encouragement of its sincere commendation.

But it is in the power of the General Government, by the use of vessels, and by other means, to furnish material assistance, and to afford substantial proof of its approbation of these researches, and the discoveries to which they have now led and to which they will conduct hereafter.

The idea that suggested them, and the plan on which they are based, are entirely original with Lieut. Maury.

By his zealous exertions, he has enlisted the interest and voluntary services of a large corps of observers, seamen and navigators, who have shared in his enthusiasm, and are now, under his direction, daily contributing to increase the securities of commerce, to develop the laws of our globe, and thus to advance the cause of human knowledge and improvement.

The Committee respectfully submits this report, with an earnest recommendation that the Association give to Lieut MAURY their cordial co-operation and support and that a copy of this paper be transmitted to the Hon Secretary of the Navy, and to the Chairmen of the Naval Committees of the Senate and House of Representatives of Congress.

JARED SPARKS,	WM C. REDFIELD,
LEWIS R. GIBBES,	J. INGERSOLL BOWDITCH.
BENJAMIN PEIRCE,	ARNOLD GUYOT.

The Report of the Committee on the "Prime Meridian" was presented in General Convention this morning by Lieut. C. H. DAVIS. This subject of a new Prime Meridian is one of general interest and when first introduced, at the Cambridge meeting, excited much discussion. It has since attracted a large share of public attention. I give Lieut. Davis's Report in full.

REPORT

Of the Committee on the PRIME MERIDIAN—*appointed at the Meeting of the American Association for the Advancement of Science, held at Cambridge, Aug. 13, 1849.*

The Committee on the Prime Meridian have the honor to report: that in consequence of the remoteness from each other of the persons composing the whole Committee, all hope was precluded of a general meeting to discuss the question under consideration, and to agree upon a common Report. A meeting, therefore, of a part only of the Committee was accordingly held, and it was determined that a correspondence should be opened with all the members, as the best means of obtaining their views and opinions. Accordingly, a sub-Committee was appointed, consisting of Lieut. Davis, Prof. Bache and Lieut Maury, to which the duty of conducting this correspondence was assigned; and a letter signed by the chairman of the sub-Committee, accompanied by copies of the papers on the Prime Meridian read to the Association by Lieut. Davis and Prof. Holton, was sent to every member. The papers served to suggest the principal topics to which the attention of the members of the Committee was called, and the letter of the chairman invited a free communication of their views and reflections. A copy of this letter is appended to this Report.

Twelve of the Committee replied to the Circular, of whom five were in favor of retaing the old standard, five were in favor of the American Meridian solely, and two were in favor of retaining the English Meridian for nautical purposes, and of establishing an origin on this Continent for geographical and astronomical purposes.

These letters were transmitted to Hon. Wm. Ballard Preston, at that time Secretary of the Navy, who placed them in the hands of the Naval Committee of the House of Representatives of Congress, to which the whole subject had already been referred.

This Committee, after having the subject for some time under consideration, introduced a resolution accompanied by a brief but able Report from its Chairman, Hon. F. P. Stanton of Tennessee, recommending that the Greenwich zero of longitudes should be preserved for the convenience of navigators, and that the meridian of the National Observatory should be adopted by the authority of Congress as its first meridian on this Continent for defining accurately and permanently territorial limits, and for advancing the Science of Astronomy in America.

In conclusion, your Committee have to say, that so far as it has heard, the mode of settling this question recommended by the Naval Committee of the House, by which the opinions entertained on both sides have been met, and partially complied with, seems to have received general approbation.

All of which is respectfully submitted.

CIRCULAR.

CAMBRIDGE, MASS. Sept 17, 1849.

DEAR SIR: At the late meeting of the American Association for the Advancement of Science, held at this place, a Committee was appointed upon the subject of an American Prime Meridian, of which you were elected a member.

This Committee had its origin in the following circumstances:

Having been charged by Hon. William Ballard Preston, Secretary of the Navy, with the duty of preparing for publication the American Nautical Almanac, provided for by the Act of Congress, approved March 3, 1849, I addressed to him a letter concerning the Prime Meridian to be adopted in the calculation of this work, the selection and determination of which form the first step in my progress.

Mr. Preston, in his reply (dated Aug 7) to this communication, directed me "to bring the subject of the 'American Prime Meridian' before the American Association for the Advancement of Science, to convene at Cambridge, Mass on the 14th inst for the purpose of soliciting the opinions of the principal Mathematicians and Astronomers upon that highly interesting subject."

In compliance with these instructions, I submitted to the Association a paper, the same in substance as my letter to the Hon. Secretary, which, upon motion of Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, was referred to a Committee, consisting of twenty-two members, with instructions "to send a copy of their Report to the Hon. William Ballard Preston, Secretary of the Navy."

A meeting of as many of this Committee as were then present was held, and a Sub-Committee, consisting of Lieut. Davis, Prof Bache, and Lieut. Maury, was appointed to conduct the correspondence, and to execute the instructions of the Association.

The persons composing the whole Committee are so remote from each other as to preclude the possibility of a general meeting to discuss this question, and agree upon any common Report; it has been determined, therefore, as the best means of obtaining their views, to address each member of the Committee separately.

Accordingly, I have the honor, as Chairman of the sub-Committee, to transmit to you a copy of the paper presented to the Association by myself, and also another paper on the Prime Meridian, by Prof. Holton, referred to the Committee, and to ask your early attention to this Communication.

These papers will serve to suggest the principal topics to which your attention is invited, and will, I hope, lead to a free communication of your views and reflections. It is not impossible that the letters of the Committee may be hereafter officially called for; you are requested to state, therefore, whether you object to having your letter printed, and, if no objection is given, I shall feel authorized to make it public, if required.

Very respectfully your obedient servant,

CHARLES HENRY DAVIS,
Lieut. U. S. Navy, Sup't Nautical Almanac.

Lieut Davis moved that this Report be referred to the Standing Committee, and, if accepted, that the Committee be discharged; which was carried.

The Committee on the subject of a "Uniform Standard of Weights and Measures," being called upon for its Report, the Chairman, Prof. HENRY, stated that the Committee had had the matter under consideration, and had prepared a Circular Letter, asking the opinion of distinguished scientific men in our own and other countries. This circular had been published, and would be submitted to the Association before the close of the session.—No further definite action than this has been taken in this matter.

Dr. B. A. GOULD of Cambridge responded to the call for the Report of the Committee on the "Publication of an Astronomical Journal," stating that he was at that moment unable to present the Report which had been prepared.

Prof. AGASSIZ alluded to the subject of memorializing the Legislature of Pennsylvania in relation to the publication of the results of the Geological Survey in that State; and hoped the Committee appointed for that purpose might be completed.

Prof. SILLIMAN, Sen. strongly supported this proposition, and trusted that we should not be long deprived of the light of the learned investigations of Prof. ROGERS.—No immediate action was taken on Prof. AGASSIZ's motion.

At a few minutes before 10 o'clock the general Session was dissolved, and the various Sections resumed their sittings in the different apartments of the College.

The Section of Chemistry and Mineralogy had a remarkably interesting meeting in the morning.—Papers were read by Mr. ERNI of Yale College Laboratory, on the Phenomena of Fermentation; by Mr. HENRY WURTZ of New-York, on the Troostite of New Jersey; by GEORGE J. BRUSH of the Yale Laboratory, on American Spodumene; by Prof. HORSFORD of Cambridge on the Adulteration of Vermillion; and others.

The first paper was a lengthy one by HENRY ERNI of the Yale Analytical Laboratory on the causes of Fermentation, in which were many interesting statements. I annex an abstract of its leading points:

ACCOUNT OF SOME EXPERIMENTS ON THE CAUSE OF FERMENTATION.

The experiments and observations on Fermentation here communicated by Mr. Erni were made in the course of the year 1847, in the Chemical Laboratory of Zurich. Their publication has been deferred because Mr. E. left Switzerland before they were extended and perfected so much as he had desired. It is well known among chemists that, notwithstanding the voluminous writings on Fermentation, we yet know very little of its original cause, and no one of the theories advanced is competent to the full explanation of the facts known at present. It is doubtless true that in this process by the action of the so-called ferment, organic bodies of complex composition such as sugar, etc. are decomposed into simpler substances.

The cause of these phenomena is considered by Liebig to be the power of the ferment as a body in a state of decomposition, *i. e.* in chemical action, to induce a similar transformation of compounds that came in contact with it. Other chemists assume that fermentation is caused by the development of fungi, and that different kinds of fermentation are due to different fungi.

The results which Mr. Erni has obtained, a part of which have been fully corroborated by more recent examinations, have enabled him to throw considerable light on some disputed points. A great variety of experiments were published by Brendecke, according to which, porous substances, as straw, feathers, alum, pulverized charcoal, potato-starch, flowers of sulphur, scraps of paper, and even small fragments of some metals, as tin, for instance, induce fermentation in a solution of grape-sugar to which some tartrate of ammonia had been added. After this it seemed probable that yeast consisting undoubtedly of vegetable cells, might like the substances mentioned produce fermentation in solutions of cane or grape-sugar, not by means of the vital force, but simply by its looseness and porosity. In repeating some of Brendecke's experiments, Mr. Erni had used grape-sugar, prepared from honey by means of alcohol and purified by boil[illegible] White refined sugar re-chrystalized from solution in hot water. In the experiments one part of sugar and eight of water were employed.

1*st Experiment*.—In the first experiment, common straw was treated with potash lye, to dissolve any gluten it might contain. After twenty-four hours the straw was washed with water, the last traces of potash removed by hydrochloric acid, and finally the straw perfectly cleaned with water. The solution of cane and grape sugar mixed with such straw underwent no change during four weeks.

2*d Experiment*.—Addition of tartrate of ammonia to such solutions as above produced no perceptible effect.

3*d Experiment*.—Straw cleaned as mentioned, together with cream of tartar, induced no fermentation in either cane or grape sugar.

4*th Experiment*.—Pulverized quartz added to solutions of cane and grape sugar, caused no fermentation. In the course of some weeks mucor or mold was formed which fructified and yielded spores. Such was the case not only in this, but also in some of the previous experiments.

5*th Experiment*.—A solution of cane sugar was mixed with uncleaned natural straw in order to see if it excited fermentation, and if so, to ascertain if it may not be owing to the development of fungi. After twelve days, fermentation commenced, and at the same time microscopical examination of the liquor showed the presence of vegetable cells identical with upper yeast.

6*th Experiment*.—The same experiment performed with grape-sugar yielded the same results, but fermentation commenced some days earlier.

Experiment 7 *to* 11.—These experiments were made upon Yeast. Rousseau made known the supposed fact that fermentation may be induced by yeast even in the presence of vegetable or mineral poisons, if rendered acid when mixed with the sugar solution. The trials of Mr. Erni did not confirm these statements. He found:

1st. That upper yeast in cane-sugar solution, acidified with tartaric acid, and poisoned with arsenious acid, produced no fermentation. The same mixture without the addition of oxide of arsenic, fermented after two days. The liquor was strongly acid by taste, became sweet again, and fermentation commenced.

2d. The same trial was made in a liquor acidulated with acetic acid, and no fermentation took place. The same mixture without the oxide of arsenic produced fermentation.

3*d*. The above two experiments were repeated, using oil of turpentine as a poison, instead of arsenious acid, and the same negative results obtained.

4*th*. Yeast added to cane or sugar solution, acidified with tartaric or acetic acid, and poisoned with a few drops of kreosote, excited no fermentation whatever.

5*th*. Mixtures of cane and grape sugar with yeast, acidified with cream of tartar, and poisoned with considerable quantities of arsenious acid, yielded fermentation. Perhaps in this case the arsenious acid formed a chemical compound with the cream of tartar, as such a salt was proved to exist by Mitscherlich.

6*th*, The same experiment repeated, with the difference that in the place of arsenious acid, kreosote and oil of turpentine were employed, showed no fermentation.

When the poisoned liquors were examined under the microscope, it could be easily seen when the poison had taken effect, the nitrogenous layer on the cell membrane seemed to have undergone a change similar to that produced by boiling.

Mr. Erni's investigations thus far led him to the conclusion *that alcoholic fermentation is caused by the development of Fungi*. He could never trace fermentation without observing at the very first evolution of carbonic acid the formation of yeast-cells although it is very difficult to decide certainly which precedes the other. He was rather in favor of the yeast-cells being the original movers—the results of Mitscherlich's experiments, Helmholz has also observed that the fermentation of grape-juice is not communicated to another portion of grape juice which is contained in a vessel closed by a bladder and introduced into the fermenting liquid. These facts, together with the experiments as to the action of poison on yeast, seem to admit of no other explanation, even by the ingenious theory of Liebig.

Mr. Erni adduced a number of his experiments on other kinds of fermentation—showing that different kinds of fermentation are due to different kinds of Fungi.

An interesting debate ensued at the conclusion of this paper. Profs. HARE, R. E. ROGERS, TORREY, SILLIMAN, Jr. and others participated. I have no time to insert a sketch of the discussion, with a single exception.

Prof. HORSFORD made a few remarks in correboration of some statements by Mr. T. S. Hunt, of the Canadian Geological Commission, in relation to the occurrence of microscopic vegetable organisms in the sulphuric acid springs of Canada. He had observed a light colored deposit in the bottoms of bottles of water from the Oak Orchard Acid Springs of Western New-York, and had submitted them for microscopic examination to Dr. Henry I. Bowditch of the Cambridge Laboratory. This gentleman prepared drawings exhibiting the structure as revealed by the microscope, which were submitted to Prof. Gray, who pronounced them to be imperfectly developed vegetable organisms.

The paper on the Troostite of New Jersey was then presented by Mr. HENRY WURTZ; and was followed by a disquisition on American Spodumene, by Mr. GEORGE J. BRUSH. Both of these were properly illustrated by chemical formulas, and were of purely scientific interest. Being of little or no general interest, they may be passed.

The next paper was upon the Dimorphism of Copper, in the course of Electrotyping, by WM. P. BLAKE of the Yale Analytical Laboratory. The subject of his observations called out some discussion. The following brief abstract embodies the main features of the paper:

DIMORPHISM OF COPPER.

Mr. Blake stated that the result of some electrotype experiments was the production of crystals of Copper not of the Monometric system, but in small hexagonal prisms. The faces of the terminal planes being small, the angles could not be conveniently measured; and Mr. Blake had endeavored to produce larger crystals before deciding upon the system to which they should be referred. He had since seen a crystal of Native Copper from South America, in form a Hexagonal prism with one terminal plane, nearly three quarters of an inch in diameter. There is, therefore, good evidence of the Dimorphism of this Metal.

ADULTERATION OF VERMILLION.

Prof. Horsford stated that the examinations of numerous specimens of Vermillion show that by far the greater portion of the various Vermillions in the market are adulterated from one-half to two-thirds. But three specimens were found pure—one from Trieste, one from China, and one from this country. Some samples examined did not contain a particle of mercury, yet strikingly resembled the pure article. The principal adulterations used were Chromate of Lead, Red Lead, Carbonate of Magnesia and Sulphate of Lime. Prof. H. recommended as a test for the purity of Vermillion, to apply the agency of heat until all the mercury present became volatilized. The residue consists of impurities.

The remainder of this morning's business must be deferred a little; time and space are waxing short. I have obtained a full abstract of some important observations by Prof. WALTER R. JOHNSON on the Gold formations of the Atlantic border, together with the valuable comments of Prof. WM. B. ROGERS thereon, with which I conclude for to-day.

Prof. ROBERT R. JOHNSON of Washington, submitted the following observations upon

THE GOLD FORMATION OF NORTH CAROLINA, VIRGINIA AND MARYLAND.

The belt or district of country in which occur the gold bearing rocks of the Atlantic border of the United States appears to range longitudinally from North-east to North-west, in a general direction, not far from N. 32 degrees E. This direction is the result of a grand number of observations, taken in all the three States, and at points where the formation appears to be the most regular and determinate. It also results from a general observation of the relative position of the extreme points at which the central axis of the Gold District has been noticed. Taking Brookville, in Maryland, and tracing by Rockville to the point of crossing of the Potomac, below the Great Falls—extending thence across the Rapahannock 10 miles above Fredericksburg; thence, through Stafford, Fauquier, [illegible] Louisa, in the State of Virginia; through Buckingham, Guilford, Davidson, Rowan, Cabarras and Mecklenburgh Counties, in North Carolina. By prolonging the same axis North-westerly, it passes through a part of York County, in Pennsylvina, in which Gold is said to have been detected; and several hundred miles further to the North-east it strikes the tour of Somerset in Vermont, in which according to Prof. Hitchcock, Gold was also discovered, more that thirty years ago.

As the result of special observations on the strike of the slate beds in which the gold veins occurred injected between the plies of sedimentary rocks, the facts observed were found between Rockville and Brookville, in Maryland, where the bearing is N. 30 E.—on the borders of Spotsylvania and Orange Cos. in Virginia, N. 29 to 32 E.—in Montgomery Co North Carolina, at the Russel Mine, N. 32 E.—and in Muhlenburgh Co at the Smart Mine, 20 miles south-eastward of Charlotte, the stroke of the beds being there N. 32 E. These are a few of the points noticed, and the results are obtained from numerous observations taken at each point.

The system of metaphoric rocks in which the gold-bearing veins occur, appears to have undergone different degrees of change in the different parts of the tract. While in some parts the original slaty structure is preserved, in others the lamination has been partly obliterated, and the texture changed by the evident effect of heat. In some points to which observation has extended, there is evidently an intermingling of rocks of the Gneissoid character with such as still retain the slaty structure. In certain parts of the North Carolina gold region, the granitic rocks prevail, and there the auriferous veins have various directions, apparently wholly irrespective of the general trend of the gold formation. Thus between the town of Charlotte and the Catawba River, and within a circuit about three or four miles in diameter are found veins which have been more or less extensively worked, with directions running to the N 64 E.; N. 47 E.; N. 8½ W.; N. 26½ E.; and N. 34 W.—so that if these directions were prolonged, they would in some cases be found intersecting each other at right angles. In regard to the materials or veinstone in which the auriferous particles are found, they differ very widely; in some cases the material is an argillature state, of a silky luster, much interspersed with minute cubes of pyrites of iron or of copper, or of both, as at the Russel mine on the Newberry, in Montgomery Co. in North Carolina; in other cases it is partly in quartz and partly in the slaty walls of the veins: and in others still it is wholly in the quartz, being scarcely at all impregnated with the precious metal.

The materials which exist in the veins are either such as have been acted on by meteoric influences and partly decomposed, or lying beyond the reach of such influences have escaped decomposition, and may be regarded as the true exponents of the deeper veinstone. These latter are in general less rich in gold than in the former, chiefly on account of having lost a part of their solid material by decomposition. But the deep ores owe their inferior value in no small degree also to the difficulty of extracting the gold from its combination with the sulphurets, which near the surface have been reduced by the combined action of air, water and other materials from the atmosphere.

Prof. WM. B. ROGERS made some interesting observations at the end of Prof. Johnson's remarks. He spoke of the geological position of the auriferous belt of the country; tracing a correspondence between the general direction of the beds and the old metamorphic rocks with which they are associated. The quartz veins usually run parallel with the beds of the adjacent strata, though they occasionally take an oblique direction. They are often single, but sometimes ramify. He considered it evident that the great mass of these igneous materials rose to the surface between the dividing planes of the talcose and micacious slates in which they occur. He also desired to call attention to the very different condition in which the gold is found in the superficial parts of the vein and at depths below the reach of meteoric agencies.—Near and at he surface, the quartz exhibits cavities formerly occupied by the sulphuret of iron, with which the gold was intimately blended. In these are frequently found granules of gold; but the sulphuret of iron has been decomposed and removed. The resulting oxide of iron is found collected along the sides or walls of the vein, forming occasionally valuable beds of iron ore, while much of the Gold is left in grains or small segregated masses in the body of the quartz. In this condition its separation is comparatively easy, Nature having already removed the sulphuret of iron, the ingredient which retains the Gold with most tenacity under the ordinary purifying processes. The Professor urged the importance of keeping in view this difference between the association of the Gold near the surface of the vein and at considerable depths, as it plainly indicates the actual productiveness of the veins. Mines might be expected to diminish, after reaching some depth below the surface, even while the real amount of gold present in the rock would probably be as great or greater below than at the surface.

These observations of two able men who have given much thought to the subject, will possess interest for all concerned with Gold; a substance, by the way, with whose history and transformations every body desires to cultivate a somewhat intimate acquaintance. M.

CITY ITEMS.

TRAVEL.—The amount of travel passing through this City at present is almost incredible. All the great thoroughfares, East, West, North and South, are crowded daily by the streams of business and pleasure tourists, while every hotel in the City is thronged to a plethoric excess. In most of the large hotels there is hardly a room to be had, and scores of travelers are every day whirling from one to the other in the vain endeavor to find resting-places for the soles of their feet. The arrivals at the Astor and Irving Houses are from 200 to 300 daily.

MORE OF THE SARATOGA FINANCIAL OPERATIONS.—Since our first statement relative to a fashionable pastime of Saratoga, whereby a gentleman of this City lost the sum of $100,000, we have come into possession of further interesting particulars. The looser, it seems, was playing against two of his fashionable compeers, the stakes being $5,000 *ante!* His loss was nearer $200,000 than $100,000, and is stated by some as exceeding even the former sum. He offered to settle by paying each of the two winners $5,000 down, and giving his notes for $50,000. This they refused, and after some discussion it was finally agreed to leave the matter to the arbitration of a fourth party, who decided that $2,000 was as much as any gentleman had a right to lose at one sitting, and that the winners, therefore, were each entitled to no more than that sum. The victim immediately forked over the amount, well content, no doubt, to escape ruin so easily. The whole matter is most disgraceful to all who were engaged in it.

THE TAILORS.—The ten unbailed tailors were yesterday transferred from Jefferson Market Prison to the Halls of Justice, in Center-st where we trust the attentions of Mr. Edmonds and his assistants will make their situations as endurable as possible. Our German Reporter desires to express his thankfulness to the officers at Jefferson Market Police Court and Prison, for courtesies during his almost constant visits, and particularly to Mr. Denison, one of the Clerks of the Court, for attentions in the examination of papers, &c. pertaining to the inquiry, bail, &c.

JUDITH.—The operatic spectacle of *Judith*, was performed last night for the second time at the Astor-place Opera House. A good audience was in attendance. The piece has been very carefully got up, and is exceedingly effective in all its arrangements. The music is better in the chorus than the arias and recitatives, but, it falls below the subject. Notwithstanding the exquisite voice, and the charm which the delicate mind of the *sfogato* lends to all pathetic passages, the music of *Judith* seemed us rather cold and unsympathetic, and we could not help wishing to see the favorite prima donna in her more brilliant and inspiring role of *Tancredi*. Many of the tableaux in Judith are very rich and striking; the triumphal procession at the close is probably as fine a spectacle as could be exhibited on the Astor House boards. After a ballet, in which Madame Augusta figured, to the general delight, Mad. Bishop sings a droll Mexican song, entitled *La Pasadita*—a lively, characteristic affair.

ANOTHER POLITICAL RIOT.—The Democracy of the Eighth Ward met last evening at Churchill's Hotel, Spring-st between Laurens and Thompson, for the purpose of electing three Delegates to Tammany Hall, and a Committee of Five to choose a Delegate to Syracuse, and organized by the appointment of D. E. Delevan, Chairman, assisted by a Secretary and Inspector of Election. Although the call of the meeting was published in only one paper, possessing but a limited circulation, a good proportion of the Loco workingmen were on hand prepared to oppose the 'cut and dried' nomination, of the wire-pulling political clique who had prepared a ticket composed of lawyers, policemen and political hacks of all grades to the exclusion of all workingmen. After about 80 votes were registered (three-fourths of which were for the following ticket, on which there is a small concession to the Industrials,) a gang of rowdies, (Short Boys, &c.) entered to vote for the "cliques" ticket, and on being refused made a regular fight, abstracted the ballot box, and broke up the meeting, but the Ward Committee have certified to the election of the following gentlemen:

For General Committee—R. T. Compton, C. H. Ring and Col. G. Smith.

For Delegates to select a Delegate to the State Convention—John Orser, G. B. Telmey, Ralph Bogart, David A. Fowler and Levy Hyer.

The Committee also adopted the following resolutions, which have caused considerable offense to the persons who make their living out of politics, and we understand further that the people, the reliable Industrial Reformers, intend holding a great Ward Mass Meeting, and the anti-clique "Democracy" will also hold another in which they will declare eternal hostility to the "cut and dried" movements in progress in the Ward:

Resolved, That we, the Democracy of the Eighth Ward, respond to the measures recommended by the Congress of Workingmen, (which meets every Tuesday evening in the New City Hall,) and commend the consideration of Labor Reform to all true Democrats. Let us abolish Wages Slavery before we meddle with Chattel Slavery. Give us the Freedom of the Public Lands, Land Limitation, Inviolable Homes, Prohibition of Government Debts, Repeal of Laws for the Collection of Debt, Direct Taxation, Freedom of Trade, Disbandment of the Standing Army and Navy, the various plans of Cooperation and Association for the Organization of Labor, the best system of City Education, the expense to be paid by a tax to be raised in the Ward, and not to go out of it—and the People will be satisfied.

Resolved, That we repudiate into the hollow sympathy made by the negrophobists for the "poor slave" on the Southern plantation, while their own white brethren are eking out a miserable subsistence in the workshop, manufactory, and on the public works of the North.

Resolved, That the Industrials of our city are urged to proceed in their noble efforts for the elevation of labor, and that we hereby tender to them our warmest sympathy, agreeing at the same time not to patronize any establishment which withholds from the Journeymen the fair compensation their Associations demand; and, in short, we are of, for and with the Industrial Reformers in their every effort to benefit Labor.

Resolved, That we hear with pleasure that the Schemes of Tammany intend to offer that Hall for the public meetings of the Protective and Beneficial Industrial Associations.

Resolved, That these resolutions be published with the rest of our proceedings this evening.

Great objections were made to the publication of the call of the meeting in only one paper, and the opinion was generally expressed that in future such a piece of political trickery would not be tolerated. It was also said that the calls should be published in the papers having the largest circulation (whether they were political or independent.) The people should be on their guard for these things and watch the movements of the intriguers, and be prepared to meet them.

COMMISSIONS ABROAD.—A young gentleman, whose references are unexceptionable, and who is about visiting England and France, is desirous of obtaining commissions of a literary or business character, which he would attend to personally for a moderate compensation. A note addressed to H. H. P. 55 Fulton-st. Brooklyn, will meet with attention.

FISHING BANKS.—The well-known steamer Buffalo makes daily trips to this popular place, and we have been informed that she seldom returns without being loaded with porgies, sea bass and black fish, some of them weighing over six pounds.

LABOR MOVEMENTS.

MEETINGS TO-NIGHT.—The Protective Union at the Operative Bakers' Union House of Call Reading Room and Library, 127 Grand-st.; Steam